

LX.—*Notes on the Quagga and Burchell's Zebra in the Paris Museum.* By R. I. POCK, Superintendent of the Zoological Society's Gardens, London.

IN the 'Bulletin du Museum d'Histoire naturelle,' pp. 449-452 (1906), Dr. Trouessart has given an account, illustrated by two admirable photogravures, of a quagga and a Burchell's zebra preserved in the Paris Museum. The quagga especially proves to be a specimen of considerable systematic importance; and since Dr. Trouessart omits to mention one or two points of interest connected with it, and makes some statements which are contrary to fact, no apology is needed for supplementing his communication with the following comments.

In a paper* on the Cape Colony quaggas, with which Dr. Trouessart does not appear to be acquainted, I pointed out that the two forms named respectively by Mr. Lydekker † *E. quagga Greyi* and *E. q. Lorenzi* resemble each other and differ from *E. q. quagga* and *E. q. Danielli* in having the stripes brown and the interspaces creamy yellow; and, further, that they may be distinguished from each other by certain characters, of which the width of the stripes on the neck is one. In *Lorenzi* the neck-stripes are exceedingly wide, the interspaces forming distinct but very narrow pale lines, whereas in *Greyi* the interspaces are relatively broad and the stripes correspondingly narrow.

So far as the width of the neck-stripes is concerned the Paris specimen is more like the type of *Lorenzi* than is any other recorded specimen. But the stripes are even wider ‡ and the intervening areas narrower than in the Vienna

* Ann. & Mag. Nat. Hist. (7) xiv. pp. 313-328 (1904).

† 'Knowledge,' xxv. p. 221 (1902). Dr. Trouessart probably had no opportunity of consulting this paper.

‡ In his description of the Paris specimen Dr. Trouessart writes:—"Les bandes foncées du cou sont doubles par le bas, mais confluentes à leur partie supérieure, de telle sorte que la bande intercalaire blanche est très étroite." The photograph does not bear out this statement, for on the left side of the body the stripes, so far as can be seen, are in two cases confluent below and divided above and in two cases divided below and confluent above, the rest being entire. Such confluence is not unusual in the quagga races of *Equus*, with which I include the Burchelline zebras. In any case, the alleged confluence does not affect the total number of neck-stripes, which is approximately the same in the Paris and Vienna specimens, as well as in the type of *Greyi* and various kinds of zebras of the *Burchelli* type. It is, moreover, the increase in the width of the stripes, not their confluence, that causes the narrowness of the intervening pale area.

example. In the latter, as in the Paris example, the pale intervening areas are distinct upon the withers; but behind the withers in the Paris example they die out, the flanks being only indistinctly striped and the hind-quarters practically unstriped. In *Lorenzi*, on the other hand, the intervening spaces persist in such a manner as to leave no doubt that both in pattern and posterior extension the stripes were, to all intents and purposes, like those of typical Burchell's zebra (*E. quagga Burchelli*), the so-called "saddle" ("selle" of Trouessart), characteristic of that animal and the more northern forms related to it, being quite evident*. Herein lies the chief difference between the Paris and Vienna specimens. To the type of *Greyi*, on the contrary, the Paris specimen shows a close resemblance in the obliteration of the stripes on the body and hind-quarters.

Further evidence of likeness between the three specimens above discussed, and especially between the Vienna and Paris animals, is supplied by Dr. Trouessart's statement that the latter has the appearance of a chestnut horse banded with white, the stripes being brown and the intervening areas whitish. In the typical quagga and *E. q. Danielli*, on the other hand, the stripes were black and the intervening areas chestnut.

It will be evident from what has been said that the Paris specimen is to a great extent intermediate in its characters between the types of *Lorenzi* and *Greyi*. This fact may be used as an argument in favour of the view held in 1904 by Mr. Lydekker†, that all the genuine quaggas belonged to a single species very variable in the degree of development of its stripes, but not resolvable into geographical races or subspecies; and also in support of the opinion, maintained by myself, that there were several local forms of this animal, the assumption of the probable existence of intermediates justifying the view that only a subspecific value should be assigned to the differences between them. Whatever conclusion be formed with regard to this matter, the chief interest of Dr. Trouessart's paper upon the Paris specimen lies in the fact that it has proved the former existence of a quagga

* As I have already pointed out, the pattern of the stripes on the body and hind-quarters of the type of *Lorenzi* affords convincing evidence of the nearness of the affinity between this quagga and typical *Burchelli*. Dr. Lorenz also was forcibly struck by the similarity between the two animals in this respect. The resemblance between them makes it impossible to draw up a logical definition of "quaggas" as distinct from "Burchell's zebras."

† P. Z. S. 1904, i. pp. 426-431.

intermediate in coloration between two specimens that have been made the types of distinct subspecies, namely *Greyi* and *Lorenzi*.

In his account of the Burchell's zebra in the Paris Museum, Dr. Trouessart incidentally attempts to prove that the forms named *Burchelli* and *Chapmanni* are specifically distinct from each other. Under *Chapmanni* he includes the northern form described as *Böhmi* (= *Granti*) and presumably also *Selousi*, *Wahlbergi*, and *antiquorum*. It is of no great moment whether these forms be regarded as species or subspecies; but since a practically complete gradation in the disappearance of the stripes from the fetlocks upwards to the root of the tail can be traced from *Böhmi* and *Selousi* through *Chapmanni*, *Wahlbergi*, and *antiquorum* to the various types of *Burchelli* (*sensu stricto*), it is illogical to draw a line between *Burchelli* and *Wahlbergi*, classifying the latter with *Böhmi* and *Selousi* and letting the former stand alone.

The distinctions upon which Dr. Trouessart lays stress are the alleged absence of stripes upon the legs in *Burchelli* and the presence of only narrow, faint, and incomplete stripes upon the hind-quarters, beneath the last complete stripe that runs from the root of the tail to the groin ("aîne"). Contrasted with this are the strong complete stripes on the hind-quarters in *Chapmanni* and their extension at least as far as the hocks. It is quite true that typical *Chapmanni* may be distinguished from typical *Burchelli* by these and other characters; but the variation in the development and downward extension of the stripes over the quarters in individual specimens of *Burchelli* is very great. I have before me the photograph of a specimen that formerly lived in the London Zoological Gardens. In this there are only about two very faint and narrow stripes below the one that passes to the root of the tail. The example in the Bristol Museum* is also very imperfectly striped below that line. This is also the case in an example that was living in the Amsterdam Zoological Gardens a year or two ago. Nevertheless the statement that there are no stripes on the legs in Burchell's zebra is not true. Stripes are quite commonly retained both on the knees and hocks; and by publishing the photograph of the *Burchelli* preserved in the Paris Museum, Dr. Trouessart has supplied additional and conclusive evidence of the occasional extension of transverse stripes—narrow and more or less broken up certainly—all over the hind-quarters down to the level of the junction of the

* For fig. and description, see Pocock, P. Z. S. 1903, ii. p. 196, and Ann. & Mag. Nat. Hist. (6) xx. p. 41 (1897).

femur and the tibia. In the striping of this region, indeed, this specimen forcibly recalls the example of *Wahlbergi* in the Tring Museum, in which the stripes on the lower portion of the quarters are broken up into an irregular reticulated pattern*. To maintain that the Tring specimen of *Wahlbergi* and the Paris specimen of *Burchelli* represent distinct species, and to hold at the same time that the former belongs to the same species as the types of *Selousi* and *Granti*, obscures the plainest facts of affinity as testified by likeness; and the adoption of Dr. Trouessart's view regarding the zebras in question, and the nomenclature it involves, renders abortive one of the primary purposes of systematic naming—that is to say, the expression of relationships, of which, in this case at least, resemblances are the sole criteria.

Touching the affinity between so-called “zebras” and “quaggas,” Dr. Trouessart remarks that Burchell's zebra approaches the quagga in pattern more than it approaches its allies, the other zebras. The truth of this statement can scarcely be admitted, for the likeness between *Burchelli* and *Wahlbergi* is, on the whole, greater than the likeness between *Burchelli* and the most “zebra”-like of all the “quaggas,” namely *Lorenzi*. Nevertheless it is gratifying to welcome an adherent of the view that the differences between “Burchell's zebra” and “quaggas” are practically equivalent to the differences between Burchell's zebra and other zebras of the same type, such as Chapman's. Dr. Trouessart, however, does not admit specific identity between quaggas and Burchell's zebras, for the alleged reason that the ground-colour of the latter is white or clear grey without mixture of red or yellow. It is difficult to find justification for this argument, since Dr. Trouessart himself describes the ground-colour of the quagga in the Paris Museum as white. Moreover, the tint of the ground-colour is not a specific character in this group of Equidæ; and it is not true that it is always white in *Burchelli*, as the literature on the subject conclusively proves. For instance, although Gray described the type specimen as white between the stripes, I pointed out ten years ago that in the specimen in the Bristol Museum the ground-colour on the body and hind-quarters is “dark ruddy greyish brown”; and in a stuffed specimen in the British Museum the interspaces are heavily washed with yellowish brown†. The same variability in tint is shown in Chapman's

* See Ann. & Mag. Nat. Hist. (6) xx. p. 45 (1897).

† In this specimen the stripes on the hind-quarters extend right down to the level of the femoro-tibial joint and are more complete and distinct than in the Paris example.

zebras. In the case of two specimens living last year in the Zoological Gardens in London, the interspaces of one were white, of the other ochre-yellow. Lastly, as has already been stated in this and other papers, the ground-colour in "quaggas" proper is either chestnut or creamy white. Hence the reasons advanced by Dr. Trouessart for separating Burchell's zebra specifically from quaggas have no foundation in fact.

LXI. — *New Mammals from Lake Chad and the Congo, mostly from the Collections made during the Alexander-Gosling Expedition.* By OLDFIELD THOMAS, F.R.S., and R. C. WROUGHTON.

THE following descriptions of two new forms of dassie were, by oversight, omitted from our paper in last month's issue of this Magazine (p. 370).

Procavia Lopesi, sp. n.

A large dassie of the hypsodont group with a buff dorsal spot.

Size about as in *Mackinderi*; fur short (20 mm.) and harsh as compared with that of *Mackinderi* (40 mm.) or even of *Jacksoni* (30 mm.); general colour above near "raw umber" of Ridgway, resulting from a mixture of black and buff; under surface dark buffy, the hairs greyish at base. Under-fur of back slate-grey at base, dirty white terminally; hairs of outer fur either wholly black, or black with pale buff tips.

Face grizzled black and white or buffy, the dark patch on the vertex really black, otherwise the usual colour-pattern of the genus; the dorsal spot comparatively broad, its hairs bright buff from base to tip.

Skull large as in *Mackinderi*, much larger than in *Jacksoni*, width of frontals much less than in the former, nasals narrow as in *Jacksoni*, quite different from the broad nasals of *Mackinderi*.

Dimensions of the type (those of the body taken in the flesh):—

Head and body 560 mm.; hind foot 70; ear 35.

Skull (Stage VIII.): greatest length 100; basilar length 90; greatest breadth 57; greatest breadth of frontals 39; anterior breadth of frontals 22; anterior breadth of nasals